

*Instant Ethernet® Series*

# Ethernet 5-Port Workgroup Hub



Use This Guide To Install:

**EW5HUB**

**User Guide**

**LINKSYS®**

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#### FCC STATEMENT

This equipment has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. These rules are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment or device
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

UG-EW5HUB-10823NC-DG

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# Introduction

## Your Instant Ethernet® 5-Port Workgroup Hub

The Instant Ethernet® 5-Port Workgroup Hub from Linksys is the most economical way to build or expand your network! Ready to run right out of the box, the hub lets you connect computers or other nodes together in seconds.

Future expansion is no problem, either. The hub includes a built-in shared uplink port that lets you plug into other hubs, switches, or backbones for easy expansion. Built-in error detection automatically protects the integrity of your data. Speed, convenience, and affordability make the Instant Ethernet® 5-Port Workgroup Hub a great introduction to the world of connectivity.

With an amazing range of expansion possibilities and an impressive array of advanced features, the Instant Ethernet® 5-Port Workgroup Hub is one powerful and compact device—all for an attractive price that's hard to beat!

## Package Contents



- One Instant Ethernet® 5-Port Workgroup Hub
- One AC Adapter
- User Guide and Registration Card

# Getting to Know the 5-Port Workgroup Hub

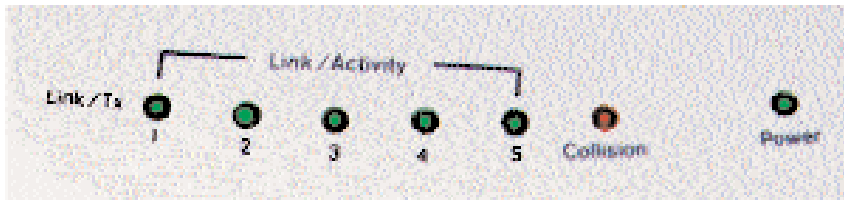
## Overview

Hubs are network devices that connect computers together in a network and help transfer data across the network. Hubs are typically 10Mbps or 100Mbps, and usually half duplex. A 10Mbps half-duplex hub transfers data at a rate over 30 times as fast as a 56K modem connection. Hubs used shared bandwidth, meaning that they must share their speed across the total number of ports on the device.

## The 5-Port Workgroup Hub's Front Panel

Your network revolves around your hub. You cannot connect your computers directly to one another. You *must* connect them through your hub.

### The Hub's LEDs



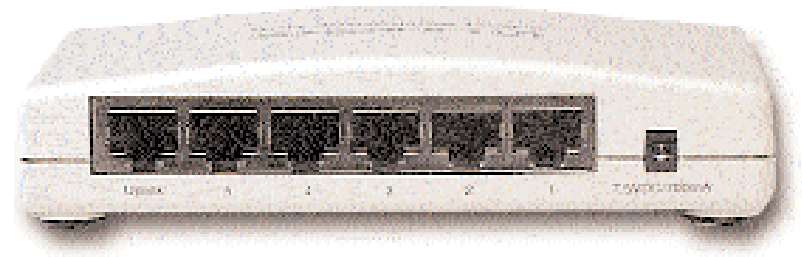
**Link/Activity (per port)** *Green.* The Link/Activity LED will illuminate if the port has an active network connection. The LED will flicker if the port is receiving or sending data.

**Collision** *Red.* The Collision LED will flicker when the connection is experiencing collisions. Infrequent collisions are normal. If this LED is flickering too often, there may be a problem with your connection. Check your connections and connecting hardware.

**Power** *Green.* The Power LED will illuminate when the the hub is receiving power.

## 5-Port Workgroup Hub

### The 5-Port Workgroup Hub's Rear Panel



### The Hub's Ports

**1-5** Ports 1-5 are where you will connect your PCs to the hub. It is through these ports that network information is exchanged.

**Uplink** You can expand your network by connecting your hub to another hub, switch, router or Broadband modem through the Uplink port. If the Uplink port is being used, the #5 port adjacent to it will become inactive, reducing the hub's operable ports from five to four.

**Power** The **Power** port is where you will connect the included power adapter. Be sure to only use the power adapter that came with the product. Using third-party power adapters could damage the hub.

# Hardware Installation

Carefully remove your 5-Port Workgroup Hub from its packaging. Make sure that you have received all of the items listed below. If any items are missing or damaged, contact your Linksys dealer for replacement part(s).

- One Instant Ethernet® 5-Port Workgroup Hub
- One AC Adapter
- User Guide and Registration Card

First, you will connect all devices to your Hub, then you will turn it on.

## Connecting Computers to the Hub

Your Hub's rear panel has five standard RJ-45 ports, plus a shared uplink port. Each port on your Hub can connect to workstations, file servers, switches, repeaters, bridges, routers or other hubs. Connections to the hub require **UTP Category 3 (or better) network cabling** with RJ-45 tips, not to exceed 100 meters (328 feet) in length. UTP Category 5 cabling is recommended.

To connect a computer directly to the hub, plug one end of the cable into any available port marked 1-5 on the back of the hub, then plug the other end of the cable into the computer's network adapter. Don't use the **Uplink** port to connect to a computer.

### Uplinking to Other Switches and Hubs

Switches, hubs, and similar network devices are **uplinked** to your Hub with straight-through UTP Category 3 cabling. Attach the UTP Category 3 cabling to the uplink port of the network device that you are uplinking to the Hub, and plug the other end of the cable into any standard RJ-45 port on your Hub. Or, connect one end of a straight-through cable to the Uplink port on the back of the Hub and connect the other end to any regular available port on the back of the network device. Using the Uplink port will automatically disable the #5 port directly next to it, since the Uplink port is a shared port. You cannot use the #5 port and the Uplink port at the same time.

## Powering on the Hub

Plug in the Hub's AC power adapter to the Power port on the back of the Hub. Plug the other end of the adapter into a standard electrical socket. Each time your Hub powers up, it will run a Diagnostic/Self-Test. After the test, the Power LED will light up. As connections to the Hub's LEDs are powered on, each port's corresponding Link/Activity LED will light up.

If the Hub experiences excessive data collisions, verify that your network cabling is securely crimped and installed properly.

Refer to the chart below for questions concerning the LEDs on the front panel.

LED Configuration Chart		
LED	LED Status	Network Status
Link/Activity (Green)	On	Connection is detected
	Flickering	Data is sending/receiving
Collision (Red)	Off	Normal operation
	Flickering	Port has data collision error
Power (Green)	On	Hub is receiving power
	Off	Hub is not receiving power

**The Hardware Installation is complete.** Hubs require no drivers or other software to operate, so there is nothing more for you to do. You are ready now to enjoy network productivity with your new Linksys product.

# Glossary

**10BaseT** - An Ethernet standard that uses twisted wire pairs.

**Adapter** - Printed circuit board that plugs into a PC to add to capabilities or connectivity to a PC. In a networked environment, a network interface card (NIC) is the typical adapter that allows the PC or server to connect to the intranet and/or Internet.

**Auto-negotiate** - To automatically determine the correct settings. The term is often used with communications and networking. For example, Ethernet 10/100 cards, hubs and switches can determine the highest speed of the node they are connected to and adjust their transmission rate accordingly.

**Backbone** - The part of a network that connects most of the systems and networks together and handles the most data.

**Bandwidth** - The transmission capacity of a given facility, in terms of how much data the facility can transmit in a fixed amount of time; expressed in bits per second (bps).

**CAT 3** - ANSI/EIA (American National Standards Institute/Electronic Industries Association) Standard 568 is one of several standards that specify "categories" (the singular is commonly referred to as "CAT") of twisted pair cabling systems (wires, junctions, and connectors) in terms of the data rates that they can sustain. CAT 3 cable has a maximum throughput of 16 Mbps and is usually utilized for 10BaseT networks.

**CAT 5** - ANSI/EIA (American National Standards Institute/Electronic Industries Association) Standard 568 is one of several standards that specify "categories" (the singular is commonly referred to as "CAT") of twisted pair cabling systems (wires, junctions, and connectors) in terms of the data rates that they can sustain. CAT 5 cable has a maximum throughput of 100 Mbps and is usually utilized for 100BaseTX networks.

**Data Packet** - One frame in a packet-switched message. Most data communications is based on dividing the transmitted message into packets. For example, an Ethernet packet can be from 64 to 1518 bytes in length.

**Dynamic Routing** - The ability for a router to forward data via a different route based on the current conditions of the communications circuits. For example, it

can adjust for overloaded traffic or failing lines and is much more flexible than static routing, which uses a fixed forwarding path.

**Ethernet** - IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium. Has a transfer rate of 10 Mbps. Forms the underlying transport vehicle used by several upper-level protocols, including TCP/IP and XNS.

**Full Duplex** - The ability of a device or line to transmit data simultaneously in both directions.

**Half Duplex** - Data transmission that can occur in two directions over a single line, but only one direction at a time.

**Hardware** - Hardware is the physical aspect of computers, telecommunications, and other information technology devices. The term arose as a way to distinguish the "box" and the electronic circuitry and components of a computer from the program you put in it to make it do things. The program came to be known as the software.

**Hub** - The device that serves as the central location for attaching wires from workstations. Can be passive, where there is no amplification of the signals; or active, where the hubs are used like repeaters to provide an extension of the cable that connects to a workstation.

**IEEE** - The Institute of Electrical and Electronics Engineers. The IEEE describes itself as "the world's largest technical professional society -- promoting the development and application of electrotechnology and allied sciences for the benefit of humanity, the advancement of the profession, and the well-being of our members."

The IEEE fosters the development of standards that often become national and international standards. The organization publishes a number of journals, has many local chapters, and several large societies in special areas, such as the IEEE Computer Society.

**LAN** - A local area network (LAN) is a group of computers and associated devices that share a common communications line and typically share the resources of a single processor or server within a small geographic area (for example, within an office building).

**Latency** - The time delay between when the first bit of a packet is received and the last bit is forwarded.

**MAC Address** - The MAC (Media Access Control) address is your computer's unique hardware number.

**Mbps** (MegaBits Per Second) - One million bits per second; unit of measurement for data transmission.

**Network** - A system that transmits any combination of voice, video and/or data between users.

**NIC** (Network Interface Card) - A board installed in a computer system, usually a PC, to provide network communication capabilities to and from that computer system. Also called an adapter.

**Port** - A pathway into and out of the computer or a network device such as a switch or router. For example, the serial and parallel ports on a personal computer are external sockets for plugging in communications lines, modems and printers.

**RJ-45** (Registered Jack-45) - A connector similar to a telephone connector that holds up to eight wires, used for connecting Ethernet devices.

**Throughput** - The amount of data moved successfully from one place to another in a given time period.

**TX Rate** - Transmission Rate.

**UTP** - Unshielded twisted pair is the most common kind of copper telephone wiring. Twisted pair is the ordinary copper wire that connects home and many business computers to the telephone company. To reduce crosstalk or electromagnetic induction between pairs of wires, two insulated copper wires are twisted around each other. Each signal on twisted pair requires both wires. Since some telephone sets or desktop locations require multiple connections, twisted pair is sometimes installed in two or more pairs, all within a single cable.

## Specifications

<b>Model Number:</b>	EW5HUB
<b>Standards:</b>	IEEE 802.3
<b>Ports:</b>	One 10BaseT Uplink Port (shared) Five 10BaseT RJ-45 Port
<b>Cabling Type:</b>	UTP Category 3 or Better
<b>Topology:</b>	Star
<b>Speed (Mbps):</b>	10Mbps
<b>LEDs:</b>	Power, Collision, Link/Act

### Environmental

<b>Dimensions:</b>	5.5" x 4" x 1.19" (139mm x 101mm x 30mm)
<b>Unit Weight:</b>	6 oz. (0.17 Kg)
<b>Power:</b>	External, 7.5V DC, 700 mA
<b>Certifications:</b>	FCC Class B, CE Mark Commercial
<b>Operating Temp.:</b>	0°C to 40°C (32°F to 104°F)
<b>Storage Temp.:</b>	-20°C to 70°C (-4°F to 158°F)
<b>Operating Humidity:</b>	10% to 85% Non-Condensing
<b>Storage Humidity:</b>	5% to 90% Non-Condensing

## Warranty Information

BE SURE TO HAVE YOUR PROOF OF PURCHASE AND A BARCODE FROM THE PRODUCT'S PACKAGING ON HAND WHEN CALLING. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE.

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## Contact Information

For help with the installation or operation of this product, contact Linksys Customer Support at one of the phone numbers or Internet addresses below.

<b>Sales Information</b>	800-546-5797 (LINKSYS)
<b>Tech Support</b>	888-793-5932
<b>RMA Issues</b>	949-261-1288
<b>Fax</b>	949-261-8868
<b>Email</b>	support@linksys.com
<b>Web</b>	<a href="http://www.linksys.com">http://www.linksys.com</a>
<b>FTP Site</b>	<a href="ftp.linksys.com">ftp.linksys.com</a>





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